

CASE REPORT

A rare case of retained, asymptomatic bullet in para spinal space due to homicidal injury by country made weapon

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Abstract Gun shot wounds are commonly fatal and among them thoracoabdominal and spinal injuries are significantly hazardous. Usually firearm injuries produce a characteristic pattern with peculiar features, rarely we encounter some very unusual and unique presentation, which requires a lot of skill and competence to handle and may create surgical or medico-legal diagnostic problems. Here we present a case of a 58 years old person, who presented with low-velocity gunshot injury in his chest at the right 3rd intercostals space and the bullet after traveling a long course inside the body, finally lodged anterior to the spine at the level L2–L3 near the great vessels. But surprisingly it did not produce any significant injury and the patient was asymptomatic. He was managed conservatively, and is having no problem on regular follow ups till date.

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1. Introduction

Thoracic and thoracoabdominal penetrating wounds are very frequently encountered in any medical/trauma center. The

incidences of violent crimes with gunshot injuries have become increasingly more common. In a US study including 3049 patients treated at a trauma center, there were 1347 stab wounds and 1702 gunshot wounds. Thoracoabdominal injuries were present in nearly 39% cases of firearm injuries and this clearly signifies the contribution of firearm-related injuries.¹

India's rates of violence vary greatly and in a majority of firearm related injuries illegal, unlicensed weapons are used. As in 2006, India was home to roughly 40 million civilian firearms, out of an estimated 650 million civilian owned guns then believed to exist worldwide.² But only 6.3 million (just over 15%) are licensed.³ These estimates convey a sense of relative scale between legal, illegal, and overall Indian civilian gun ownership. Unlicensed weapons are not only the most

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common, but also appear to be the most lethal, both overall and individually. These illegal and unlicensed firearm weapons account for 86–92% of reported firearm-related murders, depending on the year. They are the logical target for more aggressive efforts to reduce firearm-related death and injury.

Firearm injuries are invariably associated with a high degree of mortality and morbidity; rarely they remain asymptomatic or give delayed manifestation. Such a case of firearm injury without any remarkable expression is an extremely rare event, which has occurred to our patient.

In this case homicidal firearm injury was caused by a low velocity country made rifled weapon. The bullet followed an unusual trajectory, but amazingly with minimal residual injury. It perforated the anterior chest wall and traveled through the diaphragm and the abdomen till it impacted on the spine at the level of L2–L3.

2. Case report

An elderly farmer of about 60 years was brought to the casualty with alleged history of homicidal firearm injury following a quarrel, inflicted by country made rifled weapon. He bowed down to escape the fire but it all went in vain, he injured and fell down. After transient unconsciousness for 1–2 min, he recovered without any problem except for the pain at the site of injury. He was admitted after about 1 h. On examination, one bleeding lacerated wound 1 × 3 cm (the entry wound) was found in the right third intercostals space (ICS) just anterior to the anterior axillary line (Fig. 1). It was accompanied by a few more lacerations and radiating linear injuries from above downwards along with traces of unburnt gunpowder which was later on matched with that on the alleged weapon. But even on a detailed clinical examination an exit wound could not be traced. The patient was conscious, well oriented with stable vitals; Pulse 90/min, BP-130/82 mmHg, RR-24/min and no pallor. Chest examination revealed bilateral equal air entry, abdominal examination was normal with normal bowel sounds and without any guarding or tenderness. His neurological and other systemic examinations were also within normal limits; the patient was subjected to a detailed radiological screening to locate the bullet and to assess the extent of injury. Radiography of the chest was normal and there was no hemo-



Figure 1 Clinical photograph showing entry wound site on the right chest.

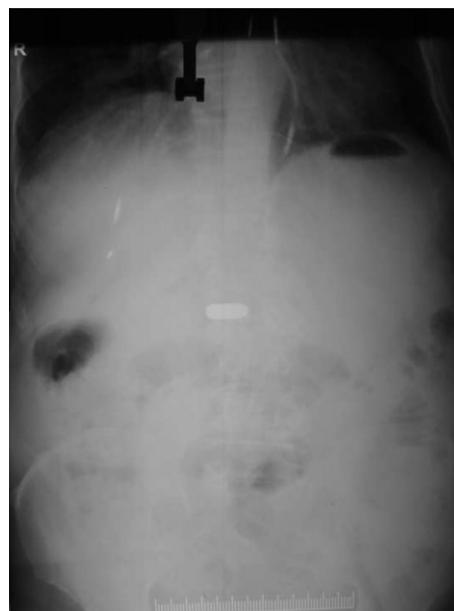


Figure 2 Radiograph (AP view) showing bullet at the level of L2–L3.



Figure 3 Radiograph (Lat. view) showing bullet at the level of L2–L3.

thorax or pneumothorax. Abdominal X-ray revealed a radio opaque shadow at the level of L2–3 and anterior and lateral view (Figs. 2 and 3) showed that the bullet was lodged anterior to the spine at the level of L2–L3 without causing any vertebral or spinal injury. There was no focal neurological deficit. The ultrasound and contrast enhanced computed tomography of abdomen were done to rule out any intra-thoracic or intra-abdominal injury as multiple organ injuries were suspected as the bullet had traveled from the thorax through the diaphragm and the whole of the upper abdomen to get lodged anterior to the spine near the great vessels but to a great sur-

prise, no organ injury was detected and the bullet was found to be lodged in retro peritoneum at the level of L2–3. The patient was initially kept under close observation, nil per orally on I/V fluids & supportive management. The patient was discharged after 5 days of an uneventful stay in the hospital. In the follow up visit after 15 days he was completely alright without any complaints and his entry wound was also healed.

On medico legal investigation the incidence was found to be purely homicidal in nature executed by a low velocity country made riffled weapon (locally known as *Katta*). It was a near range fire (4–5 ft), in which the commonly available cartridge with black gun powder, was used. These weapons are designed in such a way that they accommodate the cartridges which are cheap and easily available in that locality. Their firing mechanism is not perfect so the pattern of injury is not typical at the site of entry wound. The associated injuries might be due to the fragments of the projectile, gun powder etc. All the legal protocols were done as per the institutional rules. The assailant was arrested and the weapon was recovered. The photographs were taken on the third day of the incidence.

The patient on follow up visits till date showed no clinical symptoms or signs related to the bullet in the disk space. The repeat Radiographs and Computed Tomogram (CT) scan confirmed the bullet in its original position. Neurological examination is normal. Blood and urine lead levels were not raised.

3. Discussion

Firearm-related injuries are a major problem worldwide and one of the central issues in forensic pathology. Invariably they are fatal and little bit tricky to manage. Among them the thoracoabdominal and spinal injuries are considered to be the most devastating. The damage can be either due to a direct impact of the bullet or due to its projectile fragments injuring the spinal cord or indirect injury related to tissue damage caused in proportion to the kinetic energy and the velocity of the bullet.

Firearm fatality may be attributed to suicides, accidents or assaults. In 2008; in India a total of 4101 people (12.2% of all 33,727 murder) were murdered by firearms. Among all firearm deaths, murders constituted the largest proportion (66%), the rest (34%) were either suicidal or accidental.⁴ Most of these murders were executed by illegal, unlicensed improvised/country made firearms. According to the Indian National Crime Records Bureau (NCRB), only 14% of the murder victims in 2008 were killed by licensed firearms.⁴ Unlike licensed firearms, unlicensed weapons are generally craft-made (commonly called *Kattas*) and fire single shots; assailants can dispose of them easily and without much loss. They typically cannot be traced to any owner or by ballistic fingerprinting. These features make them ideal for criminal use. Though they are more fatal, at times they cause a very atypical injury as in the present case. It is very rare and surprising to encounter such an incidence without any hazardous manifestation. This may be due to low velocity of the bullet fired by the country made weapon which resulted in minimal trauma to the adjacent structures as it passed through.

A similar case has been reported where a 34 years old young police officer presented with a retained, asymptomatic bullet in D11–D12 intervertebral disk space due to a low-velocity gunshot injury in his right flank.⁵ But to the best of

our knowledge such a case of an elderly who remained asymptomatic despite such a long journey of the bullet inside the body has not been reported so far.

The prognosis and subsequent improvement is related with the level of spine affected and further migration of bullet from the para-spinal muscles and intervertebral disk space into the spinal canal.⁶ Comarr et al.⁷ concluded that cauda equine lesions recovered more frequently than spinal cord lesions. However, Yashon et al.⁸ stated that the final outcome in such injuries is correlated with initial neurological status rather than surgery. These embedded bullets may remain clinically silent through-out the life of the patients, however, it may migrate into the spinal canal or in the intervertebral disk space causing back pain and other pressure related symptoms.^{6,9} As our patient did not show any signs of major thoracic/abdominal injury or residual neurological deficit he was kept under strict observation and discharged after 5 days without any major surgical intervention. Most of the firearm injuries have a typical and uniform presentation, when there are some atypical findings or unusual presentation; the forensic pathologist may feel it difficult to identify the entry wound, its distinction from exit wound, tracing the wound track, estimating an approximate range of firing and differentiating suicidal injury from homicidal injury.¹⁰

Such a unique case is extremely rare where the projectile has traveled a long course inside the body without causing any remarkable injury. This sounds incredible but true. We also considered the possibility that the radio dense material is not a projectile and that the thoracic wound has a different origin, but it was ruled out by trustworthy history by the patient and his relatives, police investigations, recovered weapon and other corroborative evidence.

4. Conclusion

Firearm injuries to the spine are potentially hazardous. Such a unique case is very rare which may cause an error in calculating the number of projectiles entered into the body, lodged inside or exited through the body, besides posing a problem in ascertaining the direction of firing and direction of wound track etc. this may lead to wrong interpretation about the manner of injury and amount of damage to the body. Such cases need thorough investigation, expedite treatment and careful observation for positive clinical outcome and medico legal issues.

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Conflict of interest

None declared.

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